

Claims

1. An electronic compressed air system for vehicles with a compressed air supply part provided with a compressor and a compressed air consumer part with a plurality of service-brake circuits provided with compressed air load circuits and compressed air reservoirs, which are supplied with compressed air via electrically actuatable valves, wherein the pressure at least in the service-brake circuits is monitored by sensors, whose electrical signals are evaluated by an electronic control unit that controls the electrically actuatable valves, **characterized in that** the electrically actuatable valve (24) of the compressed air load circuit (38), which is designed without compressed air reservoirs, is closed in the de-energized normal state and in the event of compressed air demand of the compressed air load circuit (38) can be switched by the electronic control unit (84) to open position in order to establish communication with the service-brake circuits (26, 28) or with the compressed air reservoirs (90, 92) thereof and/or with the compressed air supply part (4).
2. A compressed air system according to claim 1, **characterized in that** the compressed air load circuit (38) is an air-suspension circuit.
3. A compressed air system according to claim 1, **characterized in that** the control unit (84) closes the electrically actuatable valve (24) of the compressed air load circuit (38) when a variable of state (pressure, air flow rate, air mass, energy) in the brake circuits (26, 28) drops below a specified value, turns on the compressor (7) to refill the brake circuits and reopens the electrically actuatable valve (24)

when the index value of the variable of state has been reestablished in the brake circuits, this operation being repeated until the compressed air load circuit (38) is refilled and the specified index value of the variable of state has been adjusted in the brake circuits, and in that thereafter the solenoid valve (24) is switched to the closed normal state once again and the compressor is turned off once again.

4. A compressed air system according to one of the preceding claims,
characterized in that the electrically actuatable valves (16, 18, 20, 22, 24) are solenoid valves.
5. A compressed air system according to claim 1 or 3, **characterized in that** the compressed air load circuit (38) is controlled by an electronic control device (120) that communicates with the electronic control unit (84) via a data line (122).
6. A compressed air system according to claim 5, **characterized in that** a compressed air demand is transmitted to the control device (120) via the data line (122).
7. A compressed air system according to claim 1, **characterized in that** the compressed air load circuits are provided with at least one secondary load circuit (30, 32, 34, 36) designed without compressed air reservoirs.

8. A compressed air system according to claim 7, **characterized in that** the pressure level in the secondary load circuits (30, 32, 34, 36) is lower than the pressure level in the service-brake circuits (26, 28).
9. A compressed air system according to one of claims 1, 2, 7 and 8, **characterized in that** the pressure level in the compressed air load circuit (38) is higher than the pressure level in the service-brake circuits (26, 28) and in the secondary load circuits (30 to 36).
10. A compressed air system according to one of claims 7 to 9, **characterized in that** a pressure-limiting valve (70) is interposed upstream from the solenoid valves (20, 22) of the secondary load circuits (30, 32, 34, 36).
11. A compressed air system according to one of the preceding claims, **characterized in that** the solenoid valve (24) of the air-suspension circuit (38) and the solenoid valves (16, 18, 20, 22) of the further compressed air load circuits (26 to 36) are connected to a common compressed air distributor line (14), to which there is connected a compressed air supply line (40) in communication with the compressor (7).
12. A compressed air system according to claim 11, **characterized in that** an air dryer (44) and a check valve (46) are disposed in the compressed air supply line (40).